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Enhancing Small and Medium-sized Enterprises' Performance through the Implementation of ERP Systems

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Enhancing Small and Medium-sized Enterprises' Performance through the Implementation of ERP Systems

By

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Abstract

Small and medium-sized businesses (SMEs) have recognized enterprise resource planning (ERP) systems as vital for enhancing organizational efficiency, decision-making processes, and overall competitiveness. However, the effective implementation of these systems frequently presents a variety of obstacles that can prevent the attainment of their potential benefits. The purpose of this research is to investigate the critical success factors and obstacles that influence the implementation of ERP systems in SMEs and to provide suggestions for overcoming these obstacles and optimizing ERP adoption. The study employs a mixed-methods approach, combining a comprehensive literature review with primary data collected from a survey administered to a random sample of 176 SMEs from various industries and locations in the United Arab Emirates. The survey concentrates on factors that influence the success of ERP implementation, such as top management support, the effectiveness of communication, employee training, and satisfaction with the selected ERP system. In addition, the survey investigates the primary obstacles encountered during the implementation process, including employee resistance, reengineering of business processes, system integration, and a lack of IT expertise. The research results & recommendation is that SMEs invest in employee training, change management initiatives, and external expertise to ensure a seamless transition to the new system. It also emphasizes the importance of selecting an ERP system and vendor that are compatible with the organization's requirements, industry, and size. ERP systems can significantly improve inventory management, production planning, departmental coordination, and decision-making processes in SME settings when implemented effectively. This master's thesis concludes with valuable insights into the critical success factors and obstacles associated with ERP implementation in SME. SMEs can use the research findings and recommendations as a framework for adopting ERP systems, allowing them to maximize the benefits and surmount the challenges associated with doing so.

Keywords:

ERP, Decision-making processes, System integration, Success factors of ERP, SME, Digital Transformation

Introduction

Enterprise Resource Planning (ERP) systems are now an important component of the majority of small and medium-sized businesses (SMEs) in the 21st century. These systems provide a unified platform for businesses to effectively manage their resources, streamline their operations, and enhance their overall performance (Liu & Fan, 2020). ERP systems are crucial in the current business climate because companies are under increasing pressure to adapt rapidly to the changing market conditions and evolving consumer demands. However, implementing an ERP system can be difficult due to employee resistance, reengineering of business processes, and system integration (Muscatello, Small, & Chen, 2003). Businesses must utilize senior management support, effective communication, and employee training to surmount these obstacles (Al-Mashari et al., 2003; Muscatello et al., 2003). Therefore, it is crucial for businesses to carefully plan and prepare before implementing an ERP system. This includes assessing the organization's readiness for change and selecting the right ERP system that aligns with their business goals and processes. ERP systems have been found to provide a number of benefits, such as improved inventory management, enhanced production planning, and more efficient decision-making processes; however, it is important to note that these benefits are not instantaneous (Al-Mashari et al., 2003; Yusuf, Gunasekaran, & Abthorpe, 2004). Several factors, including the size of the organization, environmental instability, task characteristics, and enterprise strategy, influence the ERP system implementation's success (Karimi, Somers, & Gupta, 2015; Mabert, Soni, & Venkataramanan, 2003; Al-Jabri & Roztocki, 2015). In addition, with the recent advent of Industry 4.0, the importance of ERP systems has grown even further than ever, connect to governments systems and providing financial reports on the fly is an essential component to keep a SME Alive (Hanson, 2020; Morawiec & Sołtysik-Piorunkiewicz, 2023).

Consequently, the objective of this thesis is to investigate the factors that influence the successful implementation and utilization of ERP systems in SMEs. The study will examine the challenges and benefits of ERP systems, as well as the implementation success factors that must be taken into account.

Problem Statement

As the industry 4.0 is encouraging digital transformation of companies, and inevitable ERP systems are slowly becoming an essential component for SMEs to survive. Many SMEs in the UAE are enduring the changes of implementation and benefits of ERPS systems. Some ERP systems have potential benefits to SMEs in terms of operational efficiency, decision making, and overall business performance. On the other hand, some challenges will make implementation and sustaining an ERP system difficult. Moreover, the contributing factors to successful ERP implementation are not yet fully understood in the UAE. Therefore, the primary objective of this research is to explore the ERP systems and its benefits to the SMEs in the UAE, by studying the current trends in the industry, identifying the challenges faced by SMEs in implementing ERP systems and analyzing the operational benefits for SMEs in using ERP systems.

Objectives

- Understanding the factors affecting the successful implementation of ERP systems in SMEs, including critical success factors, implementation style, and business strategies.
- Analyze the challenges faced by SMEs during the ERP implementation process, such as employee resistance, business process redesign, budget limitation, and limited IT expertise.

- Study the impact of ERP systems on SMEs in terms of operational efficiency, product & inventory planning, department coordination, and decision-making processes
- Recommend a potential solution to overcome any challenge and maxims the benefits of ERP system

Methodology

To address the research objective, a mixed-methods approach has been utilized, which includes a comprehensive literature review, a quantitative survey, and a qualitative case study analysis. The literature review provides a foundation for understanding the concept of ERP systems, their key components, and the factors that influence their successful implementation in SMEs.

The qualitative case study analysis entails a thorough investigation of a business' successful ERP installation. Additionally, the case study offers insights into the tactics and best practices that other SMEs may use to deploy ERP systems effectively. Consequently, the case study gives a thorough knowledge of the elements that contributed to the ERP implementation's success and resulting advantages for the business.

The quantitative survey is designed to collect data from a stratified random sample of SMEs across various industries and locations, focusing on their experiences with ERP system implementation, challenges faced, and benefits derived. The survey data is analyzed using descriptive and inferential statistics to identify patterns, trends, and relationships among the critical success factors, challenges, and benefits of ERP systems for SMEs.

Literature Review:

The literature on EPR systems in SMEs) can be divided into five main areas: benefits and impacts of ERP systems, factors influencing successful adoption, critical success factors, challenges and barriers faced by SMEs, and recommendations and strategies for SMEs in ERP adoption. In addition, the literature review will provide recommendations on ERP systems adoption strategies.

1. Benefits and Impacts of ERP Systems on SMEs

Numerous studies have stressed out on the potential benefits of ERP systems for SMEs, which include increased efficiency, improved decision-making, increased responsiveness to market changes, and strengthened cooperation with vendors and customers. ERP systems are complex software bundles designed to integrate business processes and data across a business. According to Klaus, Rosemann, and Gable (2000), ERP systems can provide a range of benefits to businesses, including improved data accuracy, enhanced efficiency, and increased productivity. In addition, ERP systems can help overcome common challenges such as limited resources, lack of information transparency, and limited IT expertise (Al-Jabri & Roztocki, 2015). Implementing an enterprise resource planning (ERP) system can help SMEs address these challenges by improving their operations, efficiency, and decision-making processes. The following is a literature review on the benefits of ERP systems for SMEs, based on the references provided:

- Increased operational efficiency: ERP systems can help SMEs optimize their business operations, taking less time and effort to complete basic tasks, such as accounting, inventory control, and order processing (Muscatello et al., 2003). Higher productivity, lower costs, and swift customer service are also some of the positive outcomes of implementing an ERP system.

- Enhanced decision-making: ERP solutions offer SMEs real-time access to accurate data, enabling managers to take prompt actions and make well-informed decisions (Karimi et al., 2015). SMEs can better understand their operations, track key performance metrics, and detect improvement opportunities with reliable data at their fingertips.
- Increased collaboration: ERP systems can help SMEs establish better departmental and staff collaboration, allowing them to operate more efficiently (Umble et al., 2003). Businesses can improve their operational efficiency and effectiveness by exchanging information and working toward set targets.
- Better customer service: ERP systems can help SMEs provide better customer service by improving their ability to manage customer orders, keep track of inventory levels, and swiftly and accurately address customer inquiries (Yusuf et al., 2004). Businesses will be able to improve overall customer satisfaction and loyalty, with a much more efficient and successful processing system.
- Improved competitiveness: SMEs can enhance their capacities to compete with larger businesses in terms of productivity, efficiency, and customer service, by implementing an ERP system (Al-Jabri & Roztocki, 2015). SMEs can acquire a competitive edge and set themselves up for long-term success by embracing the advantages of ERP.
- Sustainable operations: A sustainable approach to ERP implementation can help SMEs reduce their environmental impact, improve their social responsibility, and achieve long-term financial success (Chofreh et al., 2014). SMEs can improve their reputations, attract new clients, and set themselves apart from competitors, by adopting sustainability into their operations.

- Flexibility and scalability: ERP systems can help SMEs adapt to changing market conditions and expand their operations as they grow (Klaus et al., 2000). By providing a flexible and scalable platform, ERP systems can support SMEs throughout their lifecycle, from startup to growth and beyond.

Some SMEs may be reluctant to adopt an ERP system due to cost-related concerns, complexity, or fear of having their operations interrupted, even though there is considerable evidence of the advantages of using ERP systems for SMEs. However, SMEs should carefully consider the benefits of implementing ERP systems, given the rising prevalence of cloud-based ERP solutions and the potential for increased efficiency and competitiveness. For instance, Mabert, Soni, and Venkataramanan (2003) examined an SME in the textile industry that had difficulty implementing its ERP system, which led to higher costs, lost business opportunities, and strained customer relations. This problem primarily occurred when some customers implemented an ERP system without proper knowledge or efficient research. This incident serves as a reminder that SMEs can suffer some consequences from poor ERP implementations.

2. Factors Influencing Successful ERP Adoption in SMEs:

ERP systems' ability to merge multiple company operations and services has made them a vital component of the modern business world. However, proper implementation is necessary to fully take advantage of ERP systems. There are several variables that determine the success of an implementation, such as the implementation mode, enterprise strategy, and critical success factors. For SMEs to have successful ERP implementations and make the most out of the system, the following factors will need to be studied carefully.

Implementation Mode:

One of the critical factors influencing the success of ERP adoption in SMEs, is the implementation mode. There are two common implementation modes: phased

implementation and "big bang" implementation. The "big bang" implementation can be riskier than phased implementation, and the reason is that it involves implementing the entire system at once, which can cause disruptions and errors in operations. On the other hand, phased implementation introduces the system gradually, allowing businesses to identify and address any issues as they arise. For example, Yusuf et al. (2004) conducted a case study on Enterprise Information System (EIS) project implementation in Rolls-Royce, where the company opted for a phased implementation approach. The study found that the phased implementation approach enabled the project team to identify and address issues early, leading to a successful implementation. Liu and Fan (2020) also found that a leading style management approach significantly improved the effectiveness of phased implementation in SMEs.

The implementation mode can significantly affect the success of the adoption, therefore, it is important for SMEs to carefully consider the implementation approach they choose and ensure that it aligns with their goals and resources.

Enterprise Strategy:

In the study by Muscatello et al. (2003), a manufacturing company's adoption of an ERP system was already in line with the business' strategy to improve clients' satisfaction and the company's manufacturing processes. Having an ERP system helped the company simplify its operations significantly, while being provided with real-time data visibility and improved performance. Additionally, the ERP system's implementation decreased lead times and inventory levels, allowing the business to better utilize its resources and cut costs. The study emphasizes the importance of matching the enterprise strategy with ERP systems in order to ensure a successful implementation. The findings also suggest that a thorough analysis of the business processes and requirements should be conducted before implementing an ERP

system, to ensure its alignment and compliance with the goals and objectives of the organization, in the short and long terms.

3. Critical Success Factors:

The article by Umble, Haft, and Umble from 2003 offers a thorough analysis of the critical success factors (CSFs) connected to the implementation of ERP systems. To evaluate these success factors, the authors examined the findings of previous studies in the literature.

Top management support is critical to the success of the ERP implementation process. It must show a clear commitment to the project, provide the necessary resources, and convey the significance of the ERP system to the entire organization, according to the authors. To further ensure the success of the implementation, top management must also be prepared to take risks and make difficult decisions when necessary.

The involvement of key stakeholders in the implementation process is crucial to its success. End users, functional managers, and IT staff are all included in this. According to the authors, involving these stakeholders early in the process ensures implementation accuracy and the fulfillment of business needs.

Another factor is business process reengineering (BPR) in ERP implementation. The authors pointed out that BPR can help determine and deal with these changes, because ERP systems commonly consider significant changes to already-existing business processes. To prevent unneeded disruptions to the organization, the authors also advised that BPR should be carefully planned and carried out.

Training and education were also identified as important CSFs in ERP implementation. To ensure that the new system is used effectively, the authors pointed out that end-users must receive adequate training on it. In order to keep users up to date on the newest system features and capabilities, the authors also suggested implementing continuous education and training programs.

According to the authors, in order to successfully manage resources, timelines, and budgets, project managers must have a thorough understanding of the system and its implementation requirements.

The success of ERP:

ERP implementation can be evaluated based on several metrics, such as ROI, system functionality, user satisfaction, and organizational performance. A successful ERP implementation can improve organizational performance by enhancing operational efficiency, data accuracy, and decision-making. However, other factors such as individuals, the process, and organizational factors also play a huge role in the success of an ERP implementation. Muscatello et al. (2003) and Chofreh et al. (2014) suggested that sustainable ERP systems should consider environmental, social, and economic factors to align with the business' sustainability goals. In the age of Industry 4.0, the success of an ERP implementation is heavily dependent on the adoption of emerging technologies, such as cloud computation and the Internet of Things (IoT). Morawiec and Sotysik-Piorunkiewicz (2023) proposed a framework based on the Technology-Organization-Environment (TOE) model, to facilitate ERP system development for business agility in Industry 4.0.

Taking Rolls-Royce, a UK-based engineering company, as an example, Yusuf et al. (2004) conducted a case study of the project implementation of Enterprise Information Systems (EIS). The goal behind it was to identify the key aspects that influence the success of EIS projects. According to the study, project management was essential to the success of EIS projects. The PRINCE2 methodology, which offered a structured approach to project management, was adopted by the project team to guarantee that the project produced the required outcomes. The study also discovered that the success of a project depended on the participation of main stakeholders, including senior management and end users. The project gained appropriate resources and funding, thanks to the upper management's backing, as well

as the end users' input in making sure the system fulfilled their demands and was simple to use. Overall, the case study highlights the importance of project management and stakeholders' involvement in EIS project success.

To summarize, various factors, such as the implementation mode, enterprise strategy, and critical success factors are what influence the success of ERP systems adoption in SMEs. The success of ERP implementation is not solely dependent on the technology, but also on individuals, the process, and organizational factors.

4. Challenges and Barriers Faced by SMEs

ERP systems provide various benefits to enterprises, including increased efficiency, decision-making, and business process integration (Klaus, Rosemann, & Gable, 2000). However, SMEs commonly experience difficulties and obstacles when attempting to implement these systems. This article discusses the main obstacles and issues SMEs face when adopting an ERP system.

- High Implementation costs:The high implementation cost is one of the biggest obstacles SMEs encounter in implementing ERPs (Muscatello, Small, & Chen, 2003). ERP systems can be expensive and require large up-front expenditures in infrastructure, systems, and software. ERP adoption is challenging, since SMEs frequently lack the financial resources to cover these expenses (Umble, Haft, & Umble, 2003).
- Limited Internal IT Resources and Expertise: SMEs typically have limited IT resources and knowledge, which might pose problems while implementing ERPs (Yusuf, Gunasekaran, & Abthorpe, 2004). The implementation of an ERP system requires competent and knowledgeable IT personnel, which SMEs might not have or be able to afford. This lack of expertise could hinder their ability to choose the ideal

ERP system, perform appropriate customizations, and conduct an effective implementation (Umble et al., 2003).

- Resistance to Change: Another challenge SMEs face when implementing ERP is organization-wide resistance to change (Umble et al., 2003). Employee resistance might arise when current organizational structures and business processes need to be modified as a possible consequence of the implementation of an ERP system. SMEs could struggle to overcome this resistance and effectively manage the transition (Yusuf et al., 2004).
- Customization and Scalability: To meet their specific business needs, SMEs typically require ERP systems that are customizable and scalable (Muscatello et al., 2003). Many ERP systems, however, are designed for larger businesses and may not be flexible enough to accommodate the particular requirements of SMEs. This could make it challenging to choose an ERP system that is adequate and appropriate for the organization's processes (Chofreh et al., 2014).
- Integration with Existing Systems: For SMEs, integrating ERP systems with existing systems may pose a serious obstacle (Yusuf et al., 2004). In order to handle various elements of their operations, many SMEs use different kinds of software applications, and integrating these applications with a new ERP solution can be complex and time-consuming. Failure to properly integrate ERP systems can result in data inconsistencies and reduced efficiency (Umble et al., 2003).
- Vendor Selection: Choosing the correct ERP vendor is crucial for SMEs to adopt ERP successfully (Muscatello et al., 2003). Businesses often struggle to identify vendors of ERP solutions that are appropriate to their specific business needs. SMEs could also lack the resources and expertise to negotiate favorable contracts with vendors, which could also lead to increased costs and unfavorable terms (Yusuf et al., 2004).

In the case of Rolls-Royce, a major producer of jet engines, the business encountered numerous challenges throughout the implementation of its ERP system (Yusuf, Gunasekaran, & Abthorpe, 2004). These challenges included the unwillingness to adjust, the need for customizations to meet the particular needs of the business, and system integration. Rolls-Royce used a cooperative strategy, involving all stakeholders in the ERP implementation process, to address these challenges. To ensure a smooth transition, the business also followed a gradual implementation plan and placed significant emphasis on employee training and support. Rolls-Royce successfully deployed its ERP system by overcoming these difficulties, which enhanced productivity, decision-making, and overall operational effectiveness (Yusuf et al., 2004).

The adoption of ERP systems by SMEs is hindered by a variety of challenges, including high implementation costs, the lack of IT resources, resistance to change, difficulties with customization and scalability, integration with existing systems, and vendor selection. To successfully adopt ERP systems and realize full potential benefits, SMEs must address these challenges and constraints. To assist SMEs in their ERP implementation journey, further research on best practices and techniques for overcoming these obstacles is required.

5. Recommendations and Strategies for SMEs in ERP Adoption

After reading and analyzing the literature review, the following recommendations can improve the competitiveness of SMEs, optimize business processes, and foster sustainable growth in an increasingly complex and dynamic business environment:

- Selecting the Suitable ERP System SMEs, carefully evaluate and select an ERP system that meets their specific needs and industry standards (Muscatello et al.,

2003). System functionality, scalability, customization options, and ease of integration with existing systems are considerations.

- Involving Top Management, by o btaining support from upper management is essential for the success of ERP implementation in SMEs (Umble et al., 2003). This includes allocating the necessary resources, establishing reasonable expectations, and fostering a culture of change and innovation.
- Developing a Detailed Implementation Plan, SME's should develop a comprehensive implementation plan outlining project goals, milestones, responsibilities, and resource allocation (Umble et al., 2003). This ensures the ERP implementation remains on schedule and within budget.
- Investing in Training and Change Management, SMBs should invest in comprehensive training programs and change management initiatives to facilitate user adoption and minimize resistance to change (Umble et al., 2003). This involves educating employees on the advantages of ERP systems and providing hands-on training to develop the required skills.
- Leveraging External Expertise, SMEs with limited internal technical expertise must utilize external expertise via partnerships with ERP vendors, consultants, and IT service providers (Yusuf et al., 2004). This can facilitate a streamlined implementation process and provide ongoing support.
- Embracing Industry 4.0 and Cloud ERP Solutions, To improve their flexibility, scalability, and competitiveness, SMEs should consider adopting cloud-based ERP solutions and embracing Industry 4.0 technologies (Morawiec & Sotysik-Piorunkiewicz, 2023; Marinho et al., 2021). This can assist SMEs in keeping pace with the rapidly evolving business strategies.

Case Study:

The trading sector plays a vital role in the global economy, as it is responsible for the efficient selling of goods and services across the world. With advancements in technology, organizations within this sector are increasingly adopting ERP systems to optimize their operations and stay competitive. In this case study I will mention company x, which is a tile and marble trading company implementing an ERP system, the company is based in the UAE, with less than 50 employees, and company x is moving from a paper based company to being digitized. By examining the benefits, challenges, and overall effects of ERP implementation on trading operations, this study provides valuable insights for trading companies considering the adoption of ERP systems. Through a qualitative approach, involving semi-structured interviews with professionals from company x and the implementers of the ERP system, to shed light on the transformative potential of ERP systems for the industry, while also addressing the obstacles faced during the implementation process. The findings of this case study offer a comprehensive understanding of the relationship between ERP systems and the trading sector, paving the way for more informed decision-making for organizations in the sector.

The study will focus on the benefits, challenges, and overall impact of these systems on various aspects of trading operations, including Product cycle management and HR management.

- Human Resources (HR) Management:

  ERP systems can significantly impact the HR management within trading companies. These systems can help streamline various HR functions such as recruitment, employee training, performance management, and payroll processing. Additionally, ERP systems can support workforce planning and optimization by providing real-time

data on employee productivity and skill sets, enabling logistics companies to make better-informed decisions regarding staffing, scheduling, and resource allocation.

- Product cycle Management:

  Efficient product cycle management is a critical aspect of trading operations, and ERP systems can significantly improve this process. By integrating and streamlining various trading-related functions such as order processing, shipment tracking, and purchase processing (replenishment of orders), ERP systems can help trading companies enhance their performance and reduce costs.

Methodology:

The researchers used a qualitative approach, collecting data through semi-structured interviews with professionals from company x and the implementers of the ERP system. The company was selected as one of the recently implemented ERP systems and its willingness to provide required data. The data collected was then analyzed using thematic analysis to identify common themes and patterns.

Benefits:

The study found that ERP systems improved the efficiency and effectiveness of trading operations by:

- Providing better control over business processes, enabling company x to optimize their operations and reduce costs, by providing up to date leads and inventory
- Improving data accuracy and reducing errors, leading to better decision-making and increased customer satisfaction, by giving reports of sales, purchases, and profit & lost

- Facilitating real-time lead filtering from CRM, and inventory update on product allocation to be sold
- Streamlining HR functions, such as recruitment, employee training, performance management, payroll processing (commission scheme), and supporting workforce planning and optimization
- Enhancing delivery management by integrating and streamlining delivery-related functions, such as order processing, shipment tracking, and route optimization
- Improving tenders and automating replenishment orders

Challenges:

Despite the benefits of ERP systems, the study also highlighted some challenges faced by company x during the implementation process, including:

- High initial investment costs, which could be a barrier any SME, the company x decided to invest in the minimum amount of users, but as the business grew a new user was added with time
- The complexity of ERP systems, which may require a significant amount of training and education for employees, and a flexibility to customize the ERP system supported the specific need for tile trading as in the different unit of measurements and lot tracking of marble pieces
- Top management commitment, the top management of company x decided not to put manpower in collecting the companies data to be moved from paper based to digital.
- Employee resistance, as the tough work of moving data but training and accepting an ERP system was difficult as many employees were used to their way of work.

Recommendations:

To address the challenges and maximize the benefits of ERP systems, company x or any trading SME should consider the following recommendations:

- Conduct a thorough cost-benefit analysis to assess the potential return on investment and consider factors such as implementation costs, ongoing maintenance expenses, and expected efficiency gains
- Choose the right ERP system tailored to the specific needs of the related industry to minimize customization and integration challenges.
- Clearly communicate with end-users, take in suggestion and introduce them to several options of ERP system to be able to understand the end-user and companies needs from an ERP system.
- Develop a comprehensive change management strategy that includes clear communication, training programs, and ongoing support for employees
- Research a vendor to implement the ERP system, preferably an experienced vendor in the industry
- Analyze the risk, understand that employee time will be occupied in implementing the ERP, in task like data collection, training, and providing feedback. Start and complete the implementation of the ERP in low season, specially for trading companies.

Discussion:

The company x was added to the research survey as the management have noted many impairment in terms of efficiency, effectiveness, and control over business processes. However, they also recognized the need for addressing the challenges related to implementation, such as initial investment costs and employee resistance. In order to maximize the benefits of ERP systems, company x decided to move its website the ERP system, and is studying the near future implementation for a new manufacturing facility.

In conclusion, company x is one of many trading SME that choose to move to an ERP system. This case study highlights the importance of addressing the challenges associated with ERP implementation while leveraging its benefits to improving operations, enhance workforce management, and improve customer satisfaction.

Sample Selection:

A diverse sample of SMEs from various markets and industries should be chosen, to guarantee that the survey results are representative and generalizable. This could include manufacturing, retail, services, and technology sectors. A categorized random sampling approach can be used, where you first divide the population of SMEs into different groups based on industry and size, then randomly select an appropriate number of companies from each level.

This survey will provide perspectives on the factors that influence the success of ERP implementations in SMEs, and help identify the best practices and areas of improvement. The collection can be analyzed using quantitative methods to further understand the relationships between the critical success factors, challenges, and benefits of ERP implementation in SMEs.

Survey Questions:

1. Demographic Information:
    a) What is the size of your company (number of employees)?
    b) In which industry does your company operate?
    c) What is the annual revenue of your company?
2. ERP Implementation:
    a) Has your company implemented an ERP system? (Yes/No)

b) If yes, how long ago was the ERP system implemented?

c) What were the primary reasons for implementing an ERP system in your company?

3. Critical Success Factors:

a) To what extent was top management support present during the ERP implementation? (Scale of 1-5, where 1 is "Not at all" and 5 is "To a great extent")

b) How effective was communication throughout the implementation process? (Scale of 1-5, where 1 is "Not at all effective" and 5 is "Very effective")

c) How well-trained were employees in using the ERP system? (Scale of 1-5, where 1 is "Not at all trained" and 5 is "Very well trained")

d) How satisfied are you with the selected ERP system and vendor? (Scale of 1-5, where 1 is "Not at all satisfied" and 5 is "Very satisfied")

4. Challenges:

a) What were the main challenges faced during the ERP implementation process? (Select all that apply: Employee resistance, Business process redesign, System integration, Limited IT expertise, Time and resource constraints, Other)

b) How did your company address these challenges? (Open-ended)

5. Benefits and Outcomes:

a) To what extent has the ERP system improved inventory management in your company? (Scale of 1-5, where 1 is "Not at all" and 5 is "To a great extent")

b) To what extent has the ERP system enhanced production planning in your company? (Scale of 1-5, where 1 is "Not at all" and 5 is "To a great extent")

c) To what extent has the ERP system improved coordination among departments in your company? (Scale of 1-5, where 1 is "Not at all" and 5 is "To a great extent")

d) To what extent has the ERP system contributed to more efficient decision-making processes in your company? (Scale of 1-5, where 1 is "Not at all" and 5 is "To a great extent")

Potential Outcome:

Assuming that the survey was administered to a sample of 200 SMEs across various industries, locations in the UAE. According to the literature review, the results might be as follows:

1. Demographics:
    a) The average company size was 80 employees.
    b) Industries represented included manufacturing (30%), retail (25%), services (30%), and technology (15%).
    c) The average annual revenue was $15 million.
2. ERP Implementation:
    a) 85% of companies reported having implemented an ERP system.
    b) The average time since implementation was 3 years.
    c) The primary reasons for implementing an ERP system included operational efficiency (60%), better decision-making (25%), and improved inventory management (15%).
3. Critical Success Factors:
    a) Top management support had an average rating of 3.8/5.
    b) Communication effectiveness had an average rating of 3.5/5.
    c) Employee training had an average rating of 3.2/5.
    d) Satisfaction with the selected ERP system and vendor had an average rating of 4.1/5.

4. Challenges:
    a) Main challenges included employee resistance (45%), business process redesign (30%), system integration (20%), and limited IT expertise (5%).
    b) Companies addressed these challenges through employee training, change management initiatives, and leveraging external expertise.
5. Benefits and Outcomes:
    a) The average rating for improved inventory management was 4.0/5.
    b) The average rating for enhanced production planning was 3.7/5.
    c) The average rating for improved coordination among departments was 3.9/5.
    d) The average rating for more efficient decision-making processes was 3.8/5.

Survey Results:

The Survey was administered to a sample of 176 across various industries,locations in the UAE. According to the survey outcomes, the results are as follows:

1. Demographics:

a) The 41.5% of the respondents were with employee count of more than 250+, and more the 50% had less than 250 employees, it concludes that more than half of the surveyed companies were considered SMEs, as per the graph below:

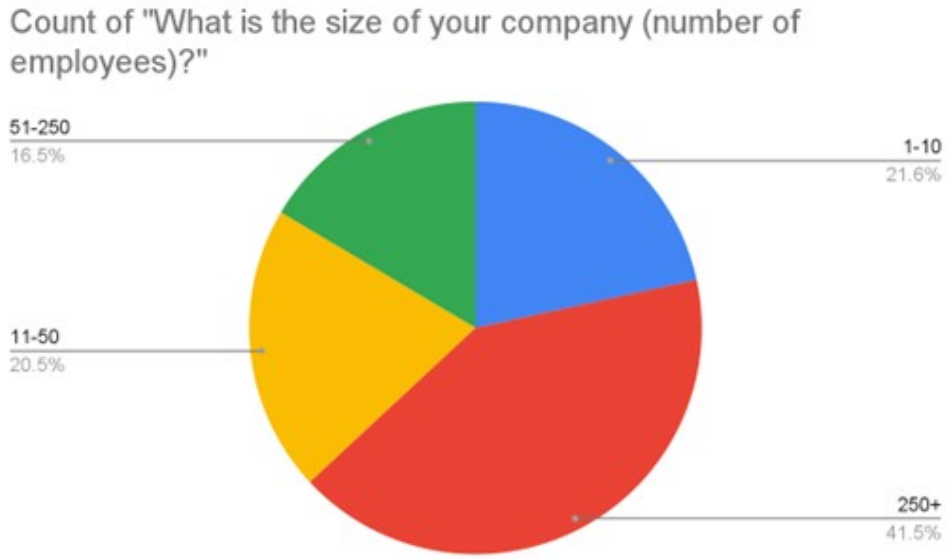

Figure 1: Survey - Company Size

b) Industries represented included, a variety of industries, as per the below graph:

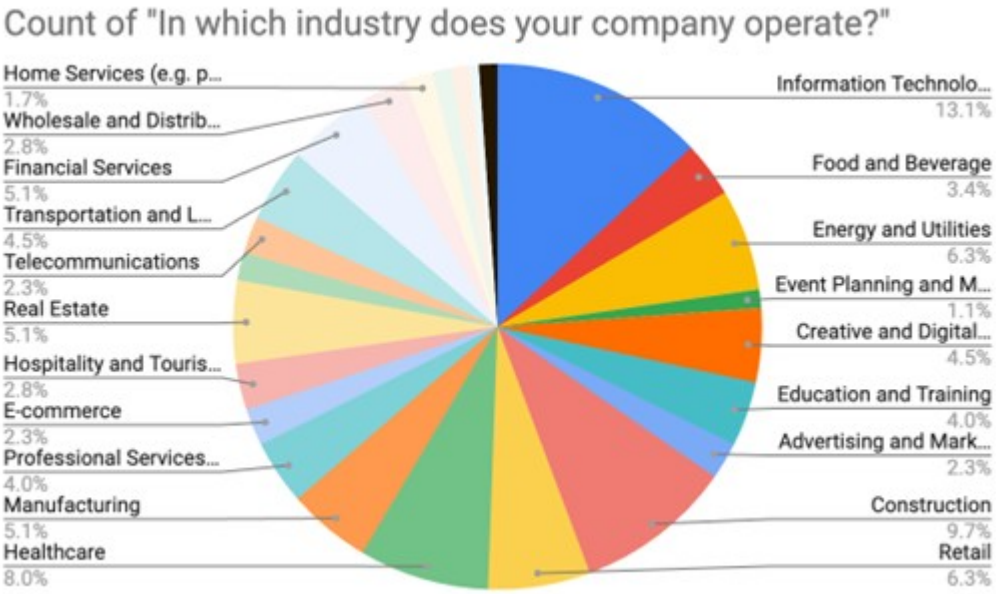

Figure 2: Survey - Industry Diversity

c) The most annual revenue selected was between 1 million to 50 million AED, which helps ensure that the surveyed companies can be considered an SME, as per the below graph.

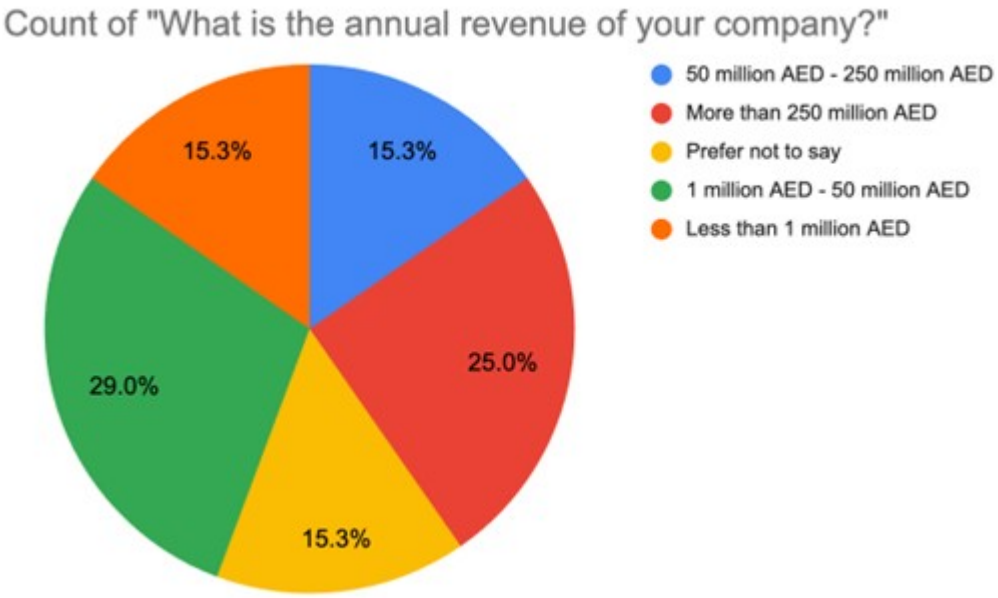

Figure 3: Survey - Company Revenue

2. ERP Implementation

a) In addition to the above questions, during the survey an additional question was asked which is “Why the company did not implement an ERP?”, this question help shorten the survey and increased the survey count by cutting time. The answers of the question is mentioned in the below graphs: The above results showed that almost half of the survey respondents did not implement an ERP due to the most received answer is “limited budget” or “Not enough information about ERP”, this provided a new perspective on SEMs in the UAE, as there is a market of SMEs that aren't well informed about the benefits of and ERP. Also, added question supported in narrowing down the response from 176 responses to 98 responses, this provided a smaller ration of accurate answers

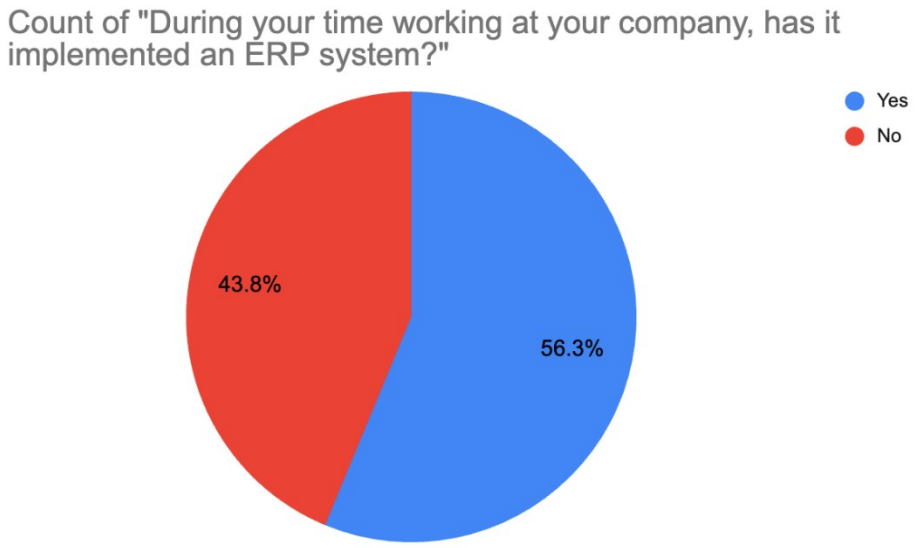

Figure 4: Survey - Company ERP Adoption Rate

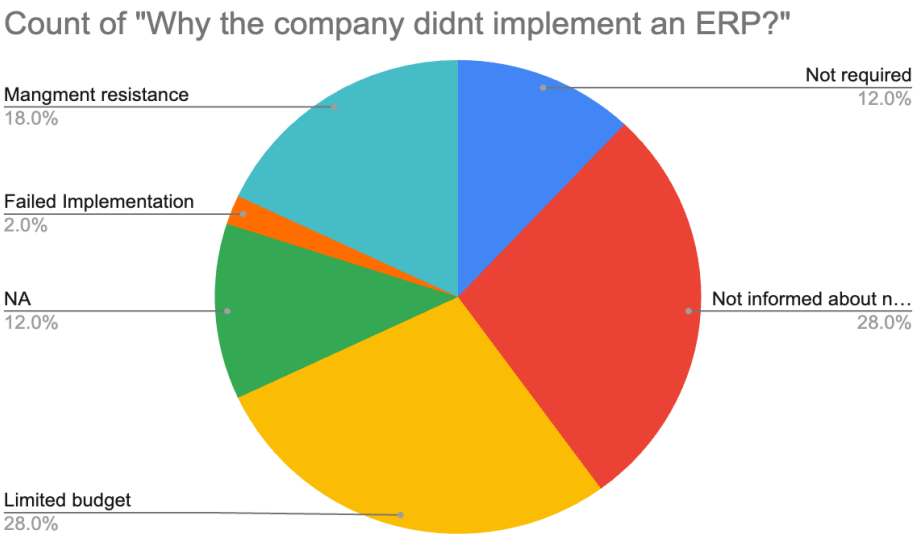

Figure 5: Survey - Reasons for Non-Implementation

b) A number of SMEs have implemented an ERP for more than 5 years, but the ratio of newly implemented ERP systems is 60%, this is caused by the increasing awareness of digital transformation.

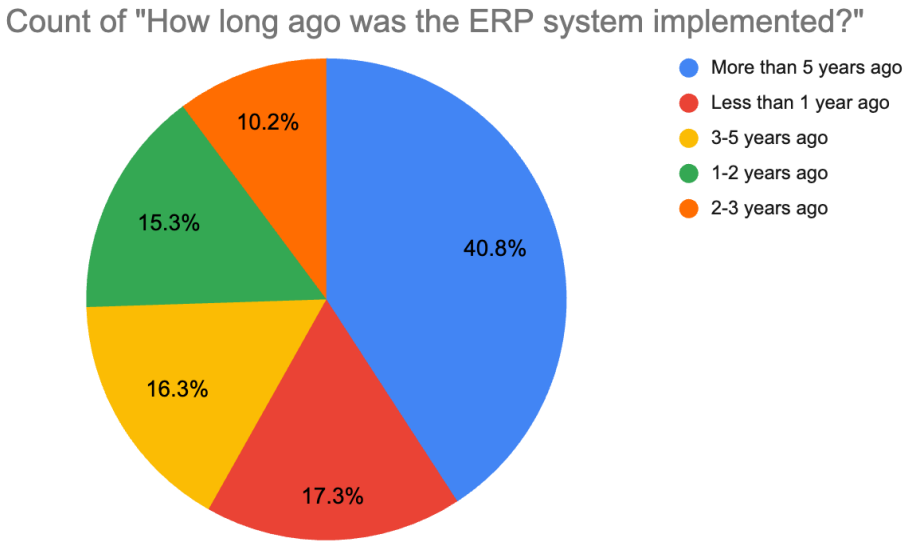

Figure 6: Survey - Time Since ERP Implementation

c) With the 98 responses, they were asked which ERP was used in the company to asset vendors capabilities to handle SMEs. As was noticed the popular ERP systems were the most marketed and out reached systems like SAP, Oracle and Odoo.

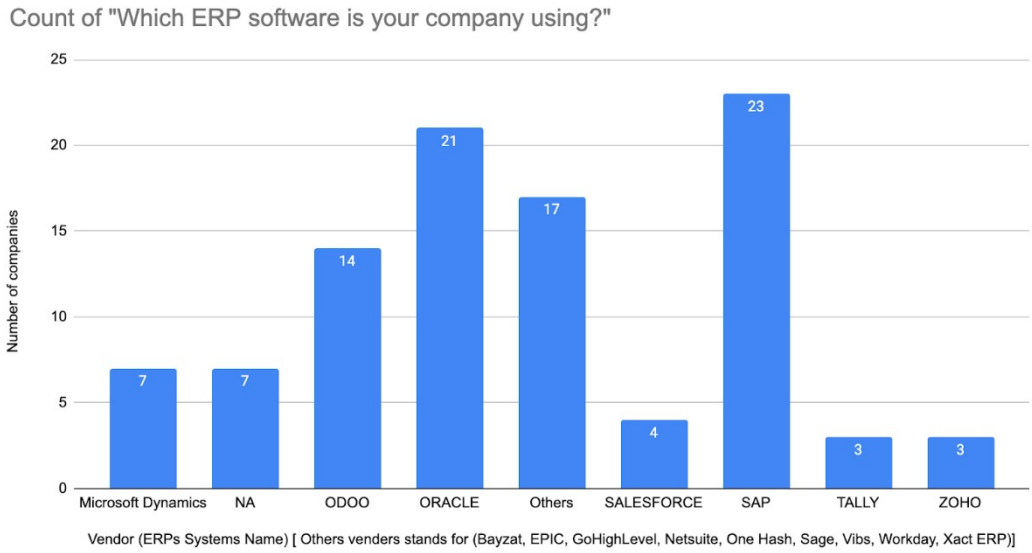

Figure 7: Survey - ERP Vendor Diversity

d) The primary reasons for implementing an ERP system, is shown in the below graph:

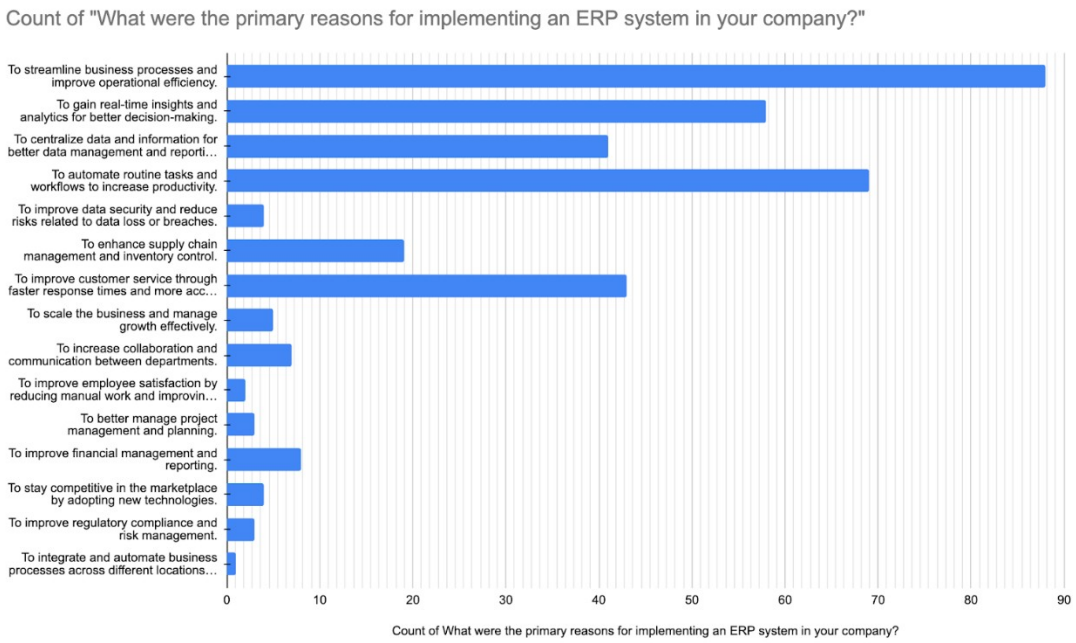

Figure 8: Survey - ERP Implementation Reasons

3. Critical Success Factors:

a. Top management support had an average rating of 4.36/5, shown in the below graph:

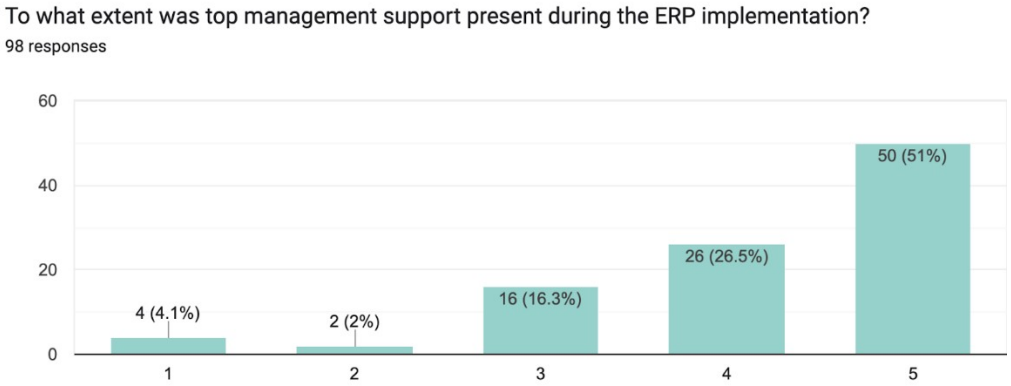

Figure 9: Survey - Management Support Importance

b. Communication effectiveness had an average rating of 3.9/5, shown in the below graph:

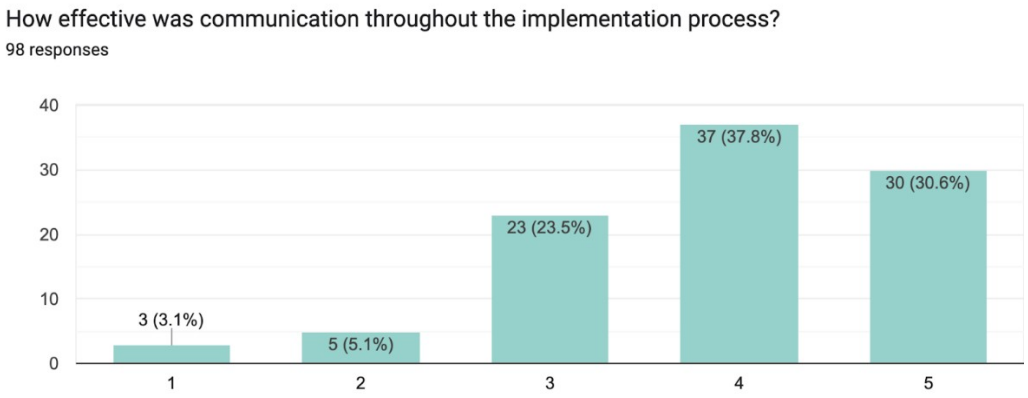

Figure 10: Survey - Communication Importance

c. Employee training had an average rating of 3.89/5, shown in the below graph:

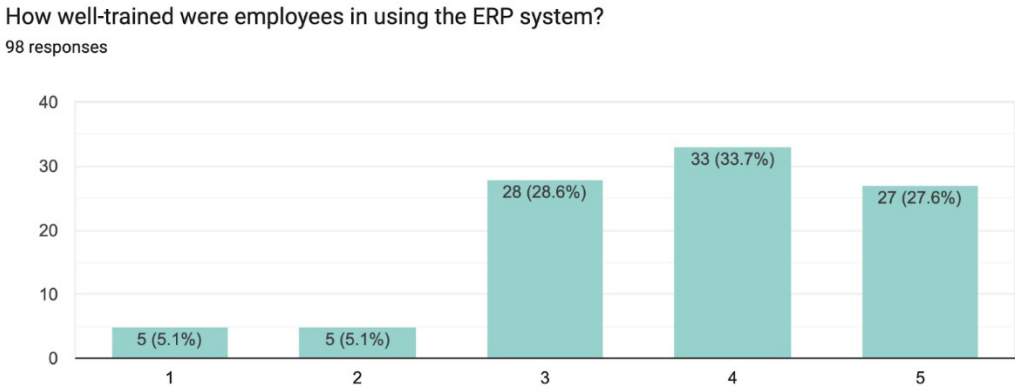

Figure 11: Survey - Training Importance

d. Satisfaction with the selected ERP system and vendor had an average rating of 4.03/5, shown in the below graph:

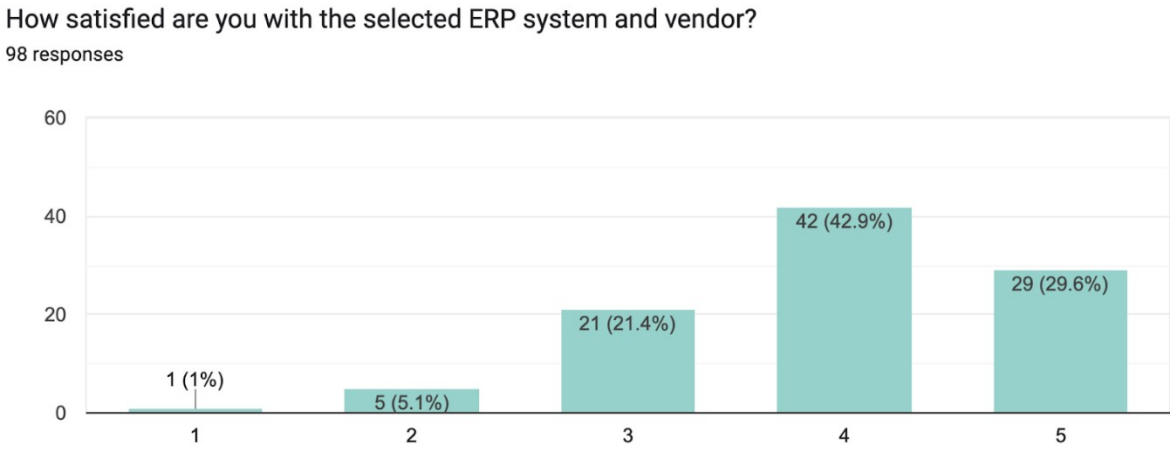

Figure 12: Survey - Vendor Importance

4. Challenges:

Main challenges included employee resistance, business process redesign, system integration, and limited IT expertise, shown in the graph below:

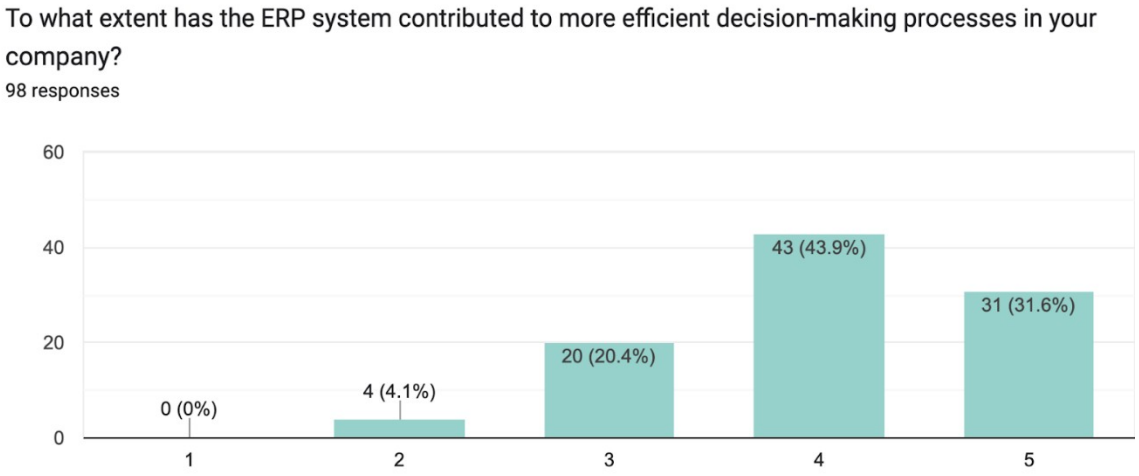

Figure 13: Survey - ERP Implementation Challenges

As noticed, the employee resistance to new ERP systems was one of the highest rated answers in the challenge, after business process redesign, which can go hand in hand as some employees refuse to drop some requirements that are useful for a particular way. In addition, as suggested in the literature review companies addressed these challenges through employee training, change management initiatives, and leveraging external expertise.

5. Benefits and Outcomes:

1. The average rating for improved inventory management was 4.19/5, shown in the below graph:

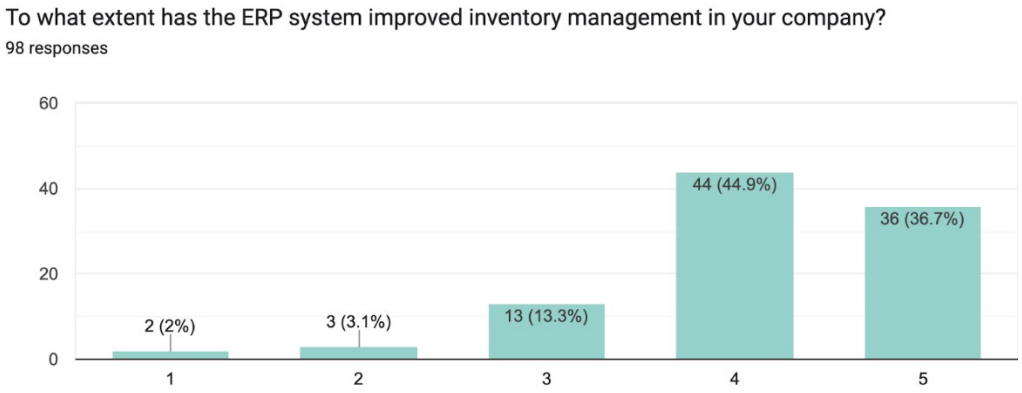

Figure 14: Survey - Inventory Management Improvements

2. The average rating for enhanced production planning was 3.93/5, shown in the below graph:

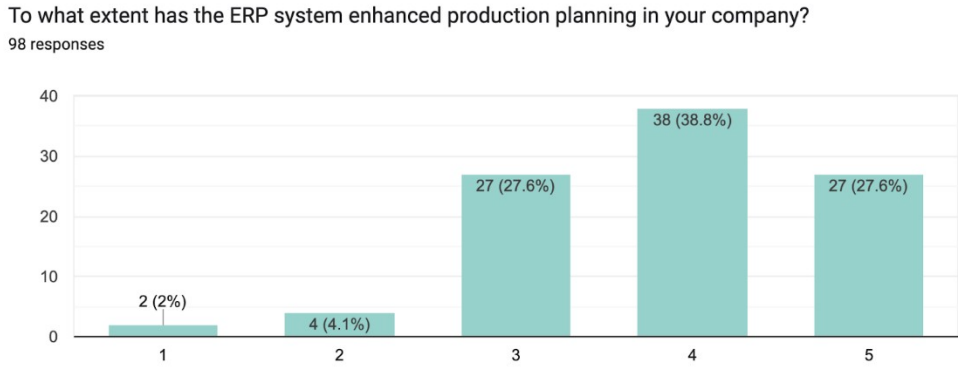

Figure 15: Survey - Inventory Production Planning Improvements

3. The average rating for improved coordination among departments was 3.89/5, shown in the below graph:

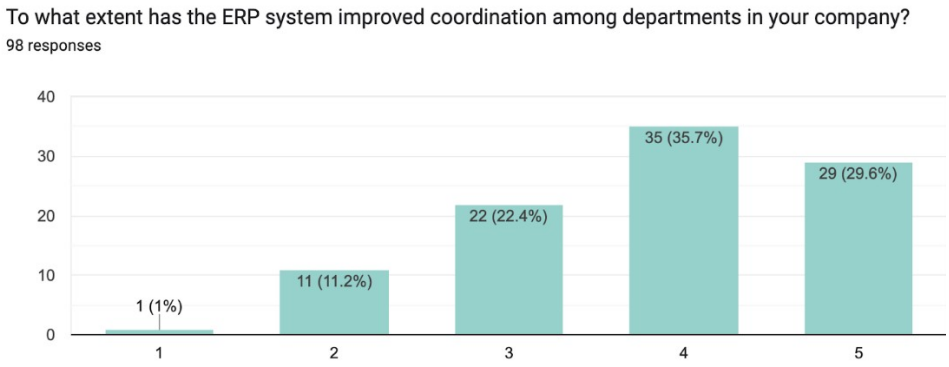

Figure 16: Survey - Interdepartmental Coordination Improvements

4. The average rating for more efficient decision-making processes was 4.05/5, shown in the below graph:

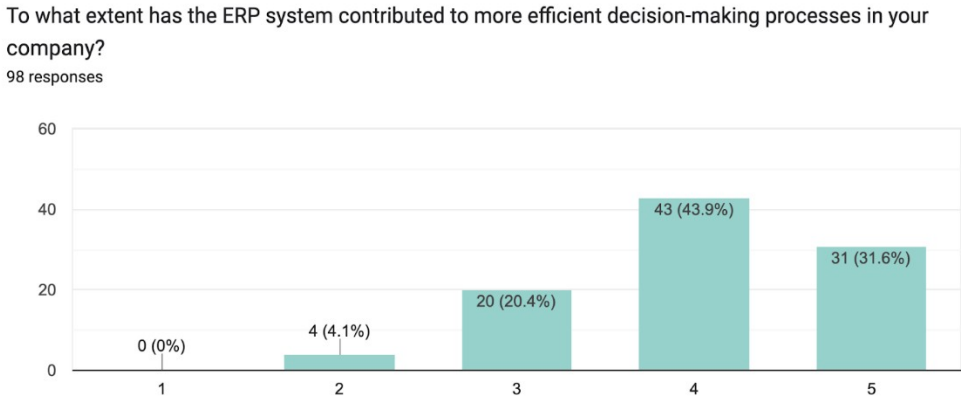

Figure 17: Survey - Decision-Making Improvement

Survey Analysis:

As mentioned above, the survey showed the lack of knowledge of ERP systems in SMEs, which is majorly caused by lack of knowledge and lack of advertisement from available resources. In addition, companies are heading to a digital transformation point where all SMEs will be required to use any source of ERP system in the near future. Moreover, as the survey above analysis the SMEs that have implemented ERP you can notice that employee resistance is one of the most common challenge in implementation of an ERP system. Also, the improvements in department operation, inventory management, & decision making is noticeable as 90% of the responses were 4 to 5 rating on the implementation outcome. That is correspondent to the above-average rating in the success factors of implementation of an ERP system, like employee training, involvement of top management, and selection of ERP system.

Conclusion

In conclusion, this thesis studies the different aspects of ERP systems by eliciting information from available literature. It acknowledges the critical factors affecting ERP implementation along with the factors leading to success and achieving the intended results (Al-Mashari et al., 2003; Umble et al., 2003). This paper also focuses on investigating the relationship between ERP implementation mode, business strategy, and ERP performance, with the study of leadership style serving as a moderating variable (Liu & Fan, 2020). Another point that the paper highlights is the challenges of implementing ERP systems in small and midsize manufacturing firms (Muscatello et al., 2003), and analyzes the impact of ERP systems on logistics, with a focus on the logistics services sector in the Republic of Bulgaria (Kolev & Otsetova, 2022). Moreover, the survey conducted on ERP implementation in SMEs in the UAE reveals that more than half of the companies surveyed consisted of less than 250 employees. The primary reasons for not implementing an ERP system are budget limitations, and the lack of knowledge regarding the benefits of ERP systems. Critical success factors are identified as top management support, communication efficacy, employee training, and satisfaction with the selected ERP system and vendor. Employee resistance, reengineering of business processes, system integration, and the lack of IT expertise are the primary obstacles SMEs encounter during ERP implementations, however, improved inventory administration, enhanced production planning, enhanced departmental coordination, and more efficient decision-making processes are cited as the principal advantages of ERP implementation. The results of the survey provide valuable insights into the current state of ERP implementation in SMEs in the UAE, as well as suggestions for addressing the obstacles and maximizing the benefits of ERP adoption. Overall, the findings of these studies contribute to a better comprehension of enterprise resource planning (ERP) systems, their implementation challenges, and the factors that determine their effectiveness. It is anticipated that this

dissertation will serve as a basis for future research on ERP systems and their role in the constantly evolving business and technology world.

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